

CLAIMS

1. A machine for hot stretch forming of sheet material comprising:

two or more opposing tool members adapted to close upon and grip edges of a workpiece of said sheet material during forming of said sheet material, one of said tool members having a forming surface for one side of said sheet material workpiece and the second of said members providing a walled chamber for pressurized gas on the other side of said sheet material workpiece, said tools being heated for the stretch forming of said workpiece;

a first rotatable shaft with a first end supported for rotation in a wall of said walled chamber, said first end extending through said wall, and a second end for actuating a mechanical sheet material forming tool in said walled chamber;

a second rotatable shaft having a first end for coupling to said first end of said first shaft for rotation of said first shaft, and a second end;

a coupling connecting the first end of the second shaft to the first end of the first shaft; and

a housing enclosing said coupling and comprising a pressure seal for the pressurized gas in said chamber.

2. The machine for hot stretch forming of sheet material as recited in claim 1 comprising a second rotatable shaft aligned with the rotational axis of said first shaft, the second shaft having a first end for rotational coupling to said first end of said first shaft, and a second end.

3. The machine for hot stretch forming of sheet material as recited in claim 1 in which said housing comprises a first portion attached to the wall of said walled chamber and enclosing the first ends of said first and second rotatable shafts and said coupling, and a second portion rigidly

attached to the first portion and enclosing a pressure seal for the pressurized gas in said chamber.

4. The machine for hot stretch forming of sheet material as recited in claim 1 in which said housing comprises a first portion attached to the wall of said walled chamber and enclosing the first ends of said first and second rotatable shafts and said coupling, a second portion rigidly attached to the first portion and enclosing a thrust bearing engaging the second shaft, and a third portion rigidly attached to the second portion and enclosing a seal for the pressurized gas in said chamber.

5. The machine for hot stretch forming of sheet material as recited in claim 1 in which said tools are individually internally heated for the stretch forming of said sheet material.

6. The machine for hot stretch forming of sheet material as recited in claim 1 in which the walls of said walled chamber comprise a thickness of thermal insulation.

7. The machine for hot stretch forming of sheet material as recited in claim 3 in which the walls of said walled chamber comprise a thickness of thermal insulation and at least some of the first portion of said housing is located within the thickness of said insulation.

8. The machine for hot stretch forming of sheet material as recited in claim 1 in which a mechanism for rotating said second rotatable shaft is connected to the second end of said shaft.

9. The machine for hot stretch forming of sheet material as recited in claim 1 in which a mechanism for rotating said second rotatable

shaft is connected to the said shaft and the second end of said shaft comprises an inlet for a cooling fluid.